

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant(s): McCafferty, et al.

App. No.: 10/803,622

Confirmation No.: 6206

Filing Date: March 18, 2004

Electronic Filing

Title: Methods for Producing Members of  
Specific Binding Pairs

Art Unit: 1639

Examiner: Amber D. Steele

**REQUEST FOR CORRECTED FILING RECEIPT**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

The above-identified patent application takes its priority from several other patent applications, one of which is US Application 07/971,857 which issued as US Patent 5,969,108. Applicants submit herewith a copy of the official filing receipt for US Application 07/971,857 (Exhibit A) as well as the front page of US Patent 5,969,108 (Exhibit B). As can be seen from the enclosed filing receipt copy and the patent front page, US Application 07/971,857 was filed as a national stage application from PCT/GB91/01134. The US PTO determined that PCT/GB91/01134 has met the requirements of 35 U.S.C. §371 and accepted US Application 07/971,857 for national patentability examination. The enclosed filing receipt copy establishes that US Application 07/971,857 was a national stage application of PCT/GB91/01134.

Applicants request that the priority claim for the above-identified application be corrected based on the fact that US Application 07/971,857 was a national stage application of PCT/GB91/01134. Applicants further respectfully request the issuance of a corrected filing receipt for the above-identified patent application.

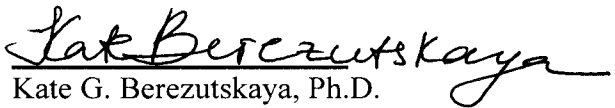
No fees are believed to be due in connection with the Applicants' request for the issuance of a corrected filing receipt, however, should any fees be deemed necessary for any reason

relating to the filing of this request, the Commissioner is hereby authorized to deduct the fees from Howrey LLP Deposit Account 08-3038 referencing the above docket number.

Respectfully submitted,

HOWREY LLP

Dated: November 3, 2008

By:   
Kate G. Berezutskaya, Ph.D.  
Registration No. 53,984  
(312) 846-5622  
Customer Number 22930

HOWREY LLP  
ATTN: Docketing Department  
2941 Fairview Park Drive, Suite 200  
Falls Church, VA 22042-9922  
Telephone No.: (703) 663-3600  
Facsimile No.: (703) 336-6950

## **Exhibit A**

2/WHD  
wburn



UNITED STATES DEPARTMENT OF COMMERCE  
Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231

US APPLICATION NO.	FIRST NAMED APPLICANT	ATTY. DOCKET NO.
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07/971,857

JOHN

A-57832/WHD

INTERNATIONAL APPLICATION NO.

PCT/GB91/01134

I.A. FILING DATE

PRIORITY DATE

10 Jul. 1991 10 Jul. 1990

DATE MAILED: 31 March 1994

**NOTIFICATION OF ACCEPTANCE OF APPLICATION UNDER 35 U.S.C. 371  
AND 37 CFR 1.494 OR 1.495**

1. The applicant is hereby advised that the United States Patent and Trademark Office in its capacity as ☐ a Designated Office (37 CFR 1.494), ☒ an Elected Office (37 CFR 1.495), has determined that the above identified international application has met the requirements of 35 U.S.C. 371, and is **ACCEPTED** for national patentability examination in the United States Patent and Trademark Office.

2. The United States Application Number assigned to the application is shown above and the relevant dates are:

8 JAN 1993  
35 U.S.C. 102(e) DATE

8 1993  
DATE OF RECEIPT OF  
35 U.S.C. 371 REQUIREMENTS

3. ☒ A request for immediate examination under 35 U.S.C. 371(f) was received on 8 JAN 1993 and the application will be examined in turn.

4. The following items have been received:

- ☒ U.S. Basic National Fee.
- ☒ Copy of the international application in:
  - ☐ a non-English language.
  - ☒ English.
- ☐ Translation of the international application into English.
- ☒ Oath or Declaration of inventor(s) for DO/EO/US.
- ☐ Copy of Article 19 amendments. ☐ Translation of Article 19 amendments into English.  
The Article 19 amendments ☐ have ☐ have not been entered.
- ☐ The International Preliminary Examination Report in English and its Annexes, if any.
- ☐ Translation of Annexes to the International Preliminary Examination Report into English.  
The Annexes ☐ have ☐ have not been entered.
- ☒ Preliminary amendment(s) filed 8 JAN 1993 and \_\_\_\_\_
- ☐ Information Disclosure Statement(s) filed \_\_\_\_\_ and \_\_\_\_\_
- ☐ Assignment document.
- ☐ Power of Attorney and/or Change of Address.
- ☐ Substitute specification filed \_\_\_\_\_
- ☐ Verified Statement Claiming Small Entity Status.
- ☐ Priority Document.
- ☒ Copy of the Search Report ☒ and copies of the references cited therein.
- ☐ Other:

A Filing Receipt (PTO-103X) will be issued for the present application in due course. Once the Filing Receipt has been received, send all correspondence to the Group Art Unit designated thereon.

Applicant is reminded that any communication to the United States Patent and Trademark Office must be

## **Exhibit B**



US005969108A

**United States Patent** [19]

McCafferty et al.

[11] **Patent Number:** 5,969,108[45] **Date of Patent:** Oct. 19, 1999[54] **METHODS FOR PRODUCING MEMBERS OF SPECIFIC BINDING PAIRS**

[75] Inventors: **John McCafferty**, Sawston; **Anthony Richard Pope**; **Kevin Stuart Johnson**, both of Cambridge; **Henricus Renerus Jacobus Mattheus Hoogenboom**, Little Shalford; **Andrew David Griffiths**, Cambridge; **Ronald Henry Jackson**, Cambridge; **Kaspar Philipp Holliger**, Cambridge; **James David Marks**, Cherry Hinton, all of United Kingdom; **Timothy Piers Clackson**, Palo Alto, Calif.; **David John Chiswell**, Middle Claydon, United Kingdom; **Gregory Paul Winter**; **Timothy Peter Bonnert**, both of Cambridge, United Kingdom

[73] Assignees: **Medical Research Council**, London; **Cambridge Antibody Technology Limited**, Cambridgeshire, both of United Kingdom

[21] Appl. No.: 07/971,857

[22] PCT Filed: Jul. 10, 1991

[86] PCT No.: PCT/GB91/01134

§ 371 Date: Jan. 8, 1993

§ 102(e) Date: Jan. 8, 1993

[87] PCT Pub. No.: WO92/01047

PCT Pub. Date: Jan. 23, 1992

[30] **Foreign Application Priority Data**

Jul. 10, 1990	[GB]	United Kingdom	9015198
Oct. 19, 1990	[GB]	United Kingdom	9022845
Nov. 12, 1990	[GB]	United Kingdom	9024503
Mar. 6, 1991	[GB]	United Kingdom	9104744
May 15, 1991	[GB]	United Kingdom	9110549

[51] **Int. Cl.<sup>6</sup>** ..... C07K 19/00; C07H 21/04; C12N 15/13

[52] **U.S. Cl.** ..... 530/387.3; 530/867; 435/9.1; 435/69.1; 435/69.8; 435/320.1; 435/235.1; 536/23.1; 536/23.53; 536/23.4

[58] **Field of Search** ..... 530/387.1, 412, 530/387.3, 867; 536/23.1, 23.53, 23.4; 435/5, 252.3, 6, 69.6, 7.1, 69.7, 9.1, 69.1, 69.8, 230.1, 320.1

[56] **References Cited**

## U.S. PATENT DOCUMENTS

4,593,002	6/1986	Dulbecco	435/172.3
4,816,397	3/1989	Boss et al.	435/68
4,946,778	8/1990	Ladner et al.	435/69.6
5,091,513	2/1992	Huston et al.	530/387
5,223,409	6/1993	Ladner et al.	435/69.7
5,403,484	4/1995	Ladner et al.	435/235.1
5,427,908	6/1995	Dower et al.	435/5

## FOREIGN PATENT DOCUMENTS

B-27617/88	7/1989	Australia	C12P 21/00
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WO 83/02393	7/1983	WIPO	
WO 88/06630	9/1988	WIPO	C12P 21/00
WO 88/09344	12/1988	WIPO	C07K 13/00
WO 90/02809	3/1990	WIPO	C12P 21/00
WO 90/05144	5/1990	WIPO	C07K 13/00
WO 90/14424	11/1990	WIPO	C12N 15/00
WO 90/14430	11/1990	WIPO	C12P 19/34
WO 90/14443	11/1990	WIPO	C12Q 1/70
WO 91/10737	7/1991	WIPO	C12N 15/13
WO 91/17271	11/1991	WIPO	C12Q 1/70
WO 92/06204	4/1992	WIPO	C12N 15/64
WO 92/09690	6/1992	WIPO	C12N 15/00
WO 92/18619	10/1992	WIPO	C12N 7/01

## OTHER PUBLICATIONS

Bass et al., *Proteins, Structure, Function and Genetics* 8:309-314 (1990).

de la Cruz et al., *J. Biol. Chem.* 263(9):4318-4322 (1988).

Huse et al., *Science* 246:1275-1281 (1989).

Kang et al., *Proc. Natl. Acad. Sci. USA* 88:4363-4366 (1991).

McCafferty et al., *Nature* 348:552-554 (1990).

Milstein, F.R.S., *Proc. R. Soc. London B* 239:1-16 (1990).

Parmley and Smith, *Gene* 73:305-318 (1988).

Short et al., *Nucleic Acids Research* 16(15):7583-7600 (1988).

Smith, *Science* 228:1315-1317 (1985).

Tsunetsugu-Yokota et al., *Gene* 99:261-265 (1991).

Winter and Milstein, *Nature* 349:293-299 (1991).

Kabat Sequences of Proteins of Immunological Interest 4th ed. (1987), p. 181.

Sambrook et al. *Molecular Cloning: A Laboratory Manual* 4.13, 4.14, 4.17-4.19, 4.46 and A.12 (1989).

*Primary Examiner*—Frank C. Eisenschenk

*Attorney, Agent, or Firm*—Marshall, O'Toole, Gerstein, Murray & Borun

[57] **ABSTRACT**

A member of a specific binding pair (sbp) is identified by expressing DNA encoding a genetically diverse population of such sbp members in recombinant host cells in which the sbp members are displayed in functional form at the surface of a secreted recombinant genetic display package (rgdp) containing DNA encoding the sbp member or a polypeptide component thereof, by virtue of the sbp member or a polypeptide component thereof being expressed as a fusion with a capsid component of the rgdp. The displayed sbps may be selected by affinity with a complementary sbp member, and the DNA recovered from selected rgdps for expression of the selected sbp members. Antibody sbp members may be thus obtained, with the different chains thereof expressed, one fused to the capsid component and the other in free form for association with the fusion partner polypeptide. A phagemid may be used as an expression vector, with said capsid fusion helping to package the phagemid DNA. Using this method libraries of DNA encoding respective chains of such multimeric sbp members may be combined, thereby obtaining a much greater genetic diversity in the sbp members than could easily be obtained by conventional methods.

59 Claims, 46 Drawing Sheets